

Open Profibus replaces closed proprietary control architecture for chemical dispense systems

# New chemical dispense strategy

With over 50 installations worldwide and over 500 chemical dispense units shipped, Chemical Safety Technology, Inc. (CST) is a recognized leader in the world of chemical dispensing systems. CST manufactures units to pump or pressure dispense hazardous production materials (acids, corrosives, solvents and flammables) to manufacturing tools that process silicon wafers for the production of semiconductors.

Chemicals are a primary component in the production of semiconductors worldwide. With stringent production, quality and employee safety requirements, chemical dispense systems play an important role in the manufacturing process of semiconductors. The changing world economy and the ever changing list of suppliers for chemical dispense systems has resulted in semiconductor fabs inheriting a legacy of obsolete proprietary systems that are unreliable, difficult and costly to operate and support. The resultant risk associated with unscheduled downtime can seriously compromise safety, quality and production goals.

## Replacing legacy systems without shutdowns

CST in collaboration with Siemens Semiconductor Automation group has developed the controls, system architecture, and methodology for replacing these proprietary chemical dispense installations, without the shutdown of any production equipment. The new system is functionally comparable to the old system but most importantly it is completely configurable, can be pre-programmed for flexibility and expandability. The extensive built in process and systems diagnostics over Profibus allow shorter hardware debugging and reduced maintenance time. Additional dis-

pense units can be added at minimum cost and downtime. The result has been customers ability to confidently switch their chemical dispense systems to Chemical Safety Technology with zero downtime.

## Off-the-shelf technology

The entire dispensing system is monitored and controlled by a Simatic S7 315-2 DP redundant controller system. Redundancy capability with off-the-shelf Siemens components was a critical factor in CST's choice of Siemens as their automation provider.

Each chemical dispensing unit has a Simatic S7 CPU 226 as its controller with local operator interface Simatic TD 200. In addition each CPU 226 communicates over Profibus to the master S7 315-2 DP redundant controller.

The flexible and modular architecture of Profibus eliminates countless wires – reducing installation time significantly. The high-speed real time, deterministic Profibus network dramatically improves system throughput – resulting in faster response times and higher productivity.

“The partnership with Siemens and the introduction of Siemens automation systems has allowed CST to maintain our leading edge in chemical dispensing systems. We are confident that Siemens can provide CST and our customers with technical support and innovative new control solutions throughout the world,” said Mr. Lincoln Bejan, president of Chemical Safety Technology. ■



Pictures: Chemical Safety

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**Richard Schuler, Siemens Silicon Valley**

**E-Mail: [schuler.richard@siemens.com](mailto:schuler.richard@siemens.com)**

**Lincoln Bejan, Chemical Safety**

**Silicon Valley**

**E-Mail: [lbejan@kemsafe.com](mailto:lbejan@kemsafe.com)**